



پ. آخرین عالی نوشتی

$$\sqrt{x+2\sqrt{x-4}} + \sqrt{x-2\sqrt{x-4}} = A \quad \sqrt{x-4} = a$$

$$A^2 = x+a + x-a + 2\sqrt{x^2-a^2} \quad a^2 = 14(x-4)$$

$$A^2 = 2(x + \sqrt{x^2-a^2})$$

$$a^2 = 14x - 56$$

$$A = \sqrt{2} (\sqrt{x + \sqrt{x^2-a^2}})$$

$$A = \sqrt{2} (\sqrt{x + \sqrt{x^2-14x+56}})$$

$$= \sqrt{2} (\sqrt{2 + \sqrt{(x-7)^2}})$$

$$= \sqrt{2} (\sqrt{x + |x-7|}) \quad x \geq 7$$

$$= \sqrt{2} (\sqrt{2x-7})$$

$$= \sqrt{2} \times \sqrt{2(x-4)} \quad x \geq 7 \quad x-4 \geq 0$$

$$A = \sqrt{2} \times \sqrt{2} \times \sqrt{x-4}$$

$$A = 2\sqrt{x-4} \longrightarrow a=0 \quad b=2 \quad c=-4$$

$$\frac{a+b}{c} = \frac{-1}{2}$$

$$f(x) = \frac{x+2\sqrt{x-4}}{x^2-4x+3} \quad Dg = \{2, 0\}$$

$$\frac{1}{f} = \left\{ (2, \frac{1}{2}) , (0, \frac{f(0)}{0}) \right\} = \left\{ (2, \frac{1}{2}) , (0, 0) \right\}$$

$$f(x) = \left\{ (\frac{1}{2}, 2) , (\frac{2}{3}, -1) , (2, 2) , (-\frac{1}{2}, 2) \right\}$$

$$f(x^2) = \left\{ (1, 2) , (\sqrt{2}, -1) , (2, 2) , (-1, 2) , (-\sqrt{2}, 2) , (-2, 2) \right\}$$

$$2g^2(x) + 1 = \left\{ (-2, 9) , (1, 7) , (2, 9) , (-1, 1) \right\}$$



$$2 \frac{f}{g} = \left\{ (1, -5) , (2, -1) \right\}$$

s.a.m

$$f+g = \{(r, 0), (r, 0), (-r, 0)\}$$

✓

$$f(x) = \frac{\sqrt{rx} - x}{x - r} \quad \sqrt{rx} - x \geq 0$$

$$x \leq \sqrt{rx}$$

$$x - \sqrt{rx} \leq 0 \quad \sqrt{x}(\sqrt{x} - \sqrt{r}) \leq 0$$

$$g(x) = [x] + [-x] \rightarrow \begin{matrix} 2 & 0 & 0 & + & 1 & = & 1 \\ \hline & & & & & & \\ & & & & & & \end{matrix}$$

$$D_{f(n)} \cap D_{g+1} = \{0, 1, \dots\}$$

$$\begin{matrix} -2r + 2x - r \geq 0 & \begin{matrix} 1 & 1 \\ \hline + & - & + \end{matrix} & y = \sqrt{4x - x^2 - 1} \\ 2r - 2x + r \leq 0 & \begin{matrix} 1 & 1 \\ \hline + & - & + \end{matrix} & x=r \rightarrow \sqrt{-1 + 10 - 1} = \sqrt{8} \end{matrix}$$

$$h_{ms} = \frac{p(n)}{q(n)} = \left\{ (1, 0), (r, \frac{r}{r}), (\dots, 0) \right\}$$

$$y = x^r - rx^r + rx - 1 + 1$$

$$y = (x-1)^r + 1$$

$$y-1 = (x-1)^r$$

$$\sqrt[r]{y-1} = x-1 \rightarrow x = \sqrt[r]{y-1} + 1 \rightarrow R_f = R_1$$

$$y = \frac{1}{x^r - rx} \rightarrow yx^r - r y x = 1$$

$$yx^r - r y x - 1 = 0$$

$$x = \frac{ry \pm \sqrt{r^2 y^2 + ry}}{ry}$$

$$ry^r, ry \geq 0$$

$$ry(y+1) \geq 0$$

$$R_f = R_1 - (-1, 0]$$

$$x(0) = 0$$

s.a.m

$$\begin{matrix} -1 & 0 \\ \hline + & - & + \end{matrix}$$

$$a) y = 2^x - 8x + 10$$

$$R_f = [4, +\infty)$$

$$\left| \frac{y}{x} \right| = 5$$



-1

$$b) y = -x^2 + 4x + 5 \quad \frac{-(4 \pm 12)}{2 \cdot (-1)} = \frac{-8 \pm 12}{-2} = 1 \text{ or } 5 \quad R_f = (-\infty, 1] \cup [5, +\infty)$$

$$c) \sqrt{x^2 - 8x + 5} \quad \frac{-(8 \pm 12)}{2} = -2 \text{ or } -10 \quad \sqrt{[-10, +\infty)} = [-10, +\infty)$$

$$d) \sqrt{-x^2 + 4x} \quad \frac{-(4 \pm 0)}{2 \cdot (-1)} = 2 \text{ or } 0 \quad R_f = \sqrt{[0, 4]} = [0, 2]$$

$$a) R_f = R_1$$

$$b) R_f = R_1$$

$$c) R_f = \sqrt{R_1} = [0, +\infty)$$

$$d) R_f = R_1^2 = [0, +\infty)$$

$$a) y = \frac{x+1}{x-2} \quad R_f = R_1 - \{2\}$$

(10)

10

$$\frac{x+1}{x-2} = y \quad x = \frac{-y-1}{1-y-2} = \frac{-y-1}{-y-1} = 1 \quad R_f = \{1\}$$

$$b) y = \frac{x+1}{x+1} \quad R_f = R_1 - \{2\}$$